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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/478,799	01/07/2000	Masanobu Hayama	23.1090	2190

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EXAMINER	
ANYASO, UCHENDU O	
ART UNIT	**PAPER NUMBER**
2675	

DATE MAILED: 10/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/478,799	HAYAMA ET AL.	
	Examiner	Art Unit	
	Uchendu O Anyaso	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17 and 20-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17 and 21-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. **Claims 1-17, 20 and 21-25** are pending in this action.

Claim Rejections - 35 USC ' 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1-17, 20 and 21-25** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Rowe* (U.S. Patent 5,479,190) in view of *Siddiqui* (U.S. 5,912,661).

Regarding **independent Claims 1, 2, 11, 12, 22, 24** and **25**, and for **claims 4, 9, 10, 13 and 23**, *Rowe* teaches an input device having a polygonal wheel structure by disclosing a multi-axis continuous loop 150 or boundaryless input device for control of a pointer or cursor on a computer screen or other graphical displays (*see* Abstract; *see also* column 3, lines 6-13; column 8, lines 55-57, figure 13 at 150).

Furthermore, Rowe teaches how the polygonal wheel structure 150 comprises a plurality of rotating bodies 154 surrounding a circumferential band defined by a continuous band 152 (see figure 13 at 152, 154).

Furthermore, *Rowe* teaches a wheel 160 which is rotatable along a first axis comprising a plurality of rotating bodies 154 that are disposed along the wheel 160 and rotating with a circumferential edge of said wheel about a first axis and the plurality of rotating bodies rotatable about a second axis (*see* figure 13 at 160, 154, column 8, lines 55 through column 9, lines 14).

The circumferential edge is further defined by a continuous band 152, which acts as a support for the grooved elements 154 (column 8, lines 55-60, figure 13 at 152, 154).

Furthermore, Rowe teaches how each of the rotating bodies have an interior thereof with raised portions and recessed portions with the wheel having projections (*see* figure 13, 14 at 154, 160). Also, Rowe teaches how the rotating bodies (154, 160), tactily communicate by disclosing a position control device comprising: a plurality of grooved segments each presenting a longitudinal void therethrough, an annular band for supporting said segments and holding said segments in adjacent annular array to permit a user to apply a rotational force on at least one of said segments to accomplish rotational movement of said segment for communication of said rotational force to a detector and to permit a user to apply a lateral force to at least one of said segments to accomplish lateral movement of said segment for communication of said lateral force to a detector, means for detecting lateral movement of at least one of said segments, means for detecting rotational movement of at least one of said segments, and means responsive to said detected segment movement for generating a signal to effect repositioning of a symbol on a graphic display device (column 10, lines 22-41).

Also, *Rowe* teaches a detector (30) that is responsive to the indicia (26) in order to generate a signal which may be processed and communicated to the cursor or pointing device to achieve movement of the cursor (*see* column 5, lines 2-23, figure 1 at 30).

However, *Rowe* does not teach a wheel rotating detection means. On the other hand, *Siddiqui* teaches a mouse (12) having a rotating wheel button (22) with an optical encoding wheel (44), and axle (30) which had left and right bearing surfaces (36, 38) which are all mounted along the circumference of the wheel (column 3, lines 3-8, figure 2 at 12, 22, 30, 36, 38

& 44), and a light detector (48) which serve as a detection means by sensing the motion of the optical encoder which is along the surface of the wheel (22), and then providing a positioning signal (*see* Abstract; *see also* column 3, lines 43-51, figure 2 at 12, 44 & 48; column 4, 33-40, figure 7).

Thus, it would have been obvious for a person of ordinary skill in the art to combine *Rowe* and *Siddiqui's* inventions because while *Rowe* teaches a wheel 160 which is rotatable along a first axis comprising a plurality of rotating bodies 154 that are disposed along the wheel 160 and rotating with a circumferential edge of said wheel about a first axis and the plurality of rotating bodies rotatable about a second axis (*see* figure 13 at 160, 154, column 8, lines 55 through column 9, lines 14) wherein the circumferential edge is further defined by a continuous band 152, which acts as a support for the grooved elements 154 (column 8, lines 55-60, figure 13 at 152, 154), *Siddiqui* teaches a wheel rotating detection means by teaching a rotating wheel button (22) with an optical encoding wheel (44), and axle (30) which has left and right bearing surfaces (36, 38) which are all mounted along the circumference of the wheel (column 3, lines 3-8, figure 2 at 12, 22, 30, 36, 38 & 44), and a light detector (48) which serves as a detection means by sensing the motion of the optical encoder which is along the surface of the wheel (22), and then providing a positioning signal . The motivation for combining these inventions would have been to provide a more efficient tactile and aural feedback to a user of this input device when a user depresses the input device or rotates the wheel (column 1, lines 60-63).

Furthermore, *Siddiqui* teaches a format change-over switch and a data transmission means by teaching left and right click buttons (18, 20) with their respective left and right microswitches (54, 56) and how they are manipulated with the wheel to operate the input device

(column 4, lines 11-20, figure 7 at 18, 20, 54 & 56) with a third switch in the form of a switch engager (50) which depresses the switch button (51) of a microswitch (52) when the wheel button (22) is depressed (column 4, lines 11-20, figure 7 at 22, & 50-52). Also, *Siddiqui* teaches a detecting means for the third switch by teaching that microswitch (52) is mounted on a circuit board (28), along with left and right microswitches (54, 56) that are activated by left and right mouse buttons (column 4, lines 11-20, figure 7 at 28, 52, 54 & 56). This provides a detection means for detecting the operating state of the switches and also enables the mouse buttons (18, 20) to provide tactile and aural feedback to a user who depresses the wheel (22) (column 4, lines 11-20, figure 7 at 18, 20 & 22).

Regarding **Claims 3** and **12**, in further discussion of claims 2 and 11, *Siddiqui* teaches/shows a ratchet construction of his invention wherein the wheel is adapted to fit in this ratchet construction (*see* figures 2 & 3).

Regarding **Claims 5-8** and **14-17**, in further discussion of claims 1 and 10, *Rowe* teaches/shows the cylindrical and spherical configurations of the rotating bodies (figure 13 at 154, 160; *see also* figure 1 at 12, 12a-12c, 24, 26).

Regarding **Claims 20** and **21,** in further discussion of claims 11, *Siddiqui* teaches a detent mechanism (40) and a detent spring (42) that provides tactile and aural feedback to a user to allow precise control of the rotation of the axle (30) that is used to control the wheel (22) (column 3, lines 66 to column 4, lines 1-10, figure 2).

Response to Arguments

4. Applicant's arguments filed on June 23, 2004 have been fully considered but they are not persuasive.

Applicant amended independent claims 1, 2, 11, 12, 22, 24 and 25 to include the feature of a polygonal wheel and a plurality of rotating bodies that rotate about an axis. Applicant then argues that the multi-axis loop 150 is not polygonal wheel because a wheel must be capable of turning on an axial. However, Rowe does teach a polygonal wheel by the structure as shown in figure 13. This structure 150 comprises grooved segments 154, which are capable of rotating about an axis as defined by the continuous band 152. Clearly, band 152 provides the axis of rotation for the wheel. Grooved segments 154 rotate in the Arrow "M" and Arrow "R" directions (see column 8, lines 55-63, figure 13 at 152, 154).

As such, applicant's amendments and arguments are not persuasive.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Uchendu O. Anyaso** whose telephone number is **(703) 306-5934.** If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Steve Saras**, can be reached at **(703) 305-9720.**

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Uchendu O. Anyaso

09/28/2004

AMR A. AWAD
PRIMARY EXAMINER